

**CLAIMS**

1-20. (Cancelled)

21. (Currently Amended) A multistage differential amplifier, comprising:

(a)—a first amplifier stage, said the first amplifier stage including:

(i)—a first differential pair of input transistors with loads coupled to a supply voltage through a first common-mode transistor; and

(ii)—a first pair of emitter-follower output transistors coupled to said the first differential pair of input transistors;

(b)—a second amplifier stage, said the second amplifier stage including:

(i)—a second differential pair of input transistors with loads coupled to said the supply voltage through a second common-mode transistors; and

(ii)—a second pair of emitter-follower output transistors coupled to said the second differential pair of input transistors, wherein said the second differential pair of input transistors is coupled to said the first pair of emitter-follower output transistors; and

(e)—a voltage regulator coupled to control said the first common-mode transistor, said the voltage regulator including:

(i)—a differential amplifier with a first input from a reference voltage, a second input from a temperature responsive unit, and an output to a third transistor connected between a supply voltage and said the temperature responsive unit; and

(ii)—a regulated voltage output locus-node between said the third transistor and said the temperature responsive unit, wherein said the temperature responsive unit includes in series a first resistor, a second resistor, and a diode-connected transistor having a voltage-temperature response similar to that of each of the first pair of emitter-follower output transistors in the first amplifier stage.

22. (Currently Amended) The amplifier of claim 21, wherein (i) said the first resistor is between said the output locus-node and said the diode-connected transistor, said the diode-connected transistor is between said the first resistor and said the second resistor, and

said the second resistor is between said the diode-connected transistor and ground, and (ii) said the input from a temperature responsive unit connects between said the diode-connected transistor and said the second resistor.

23. (Currently Amended) Th e amplifier of claim 21, wherein (i) said the diode-connected transistor is between said the output ~~locus-node~~ and said the first resistor, first resistor is between said the diode-connected transistor and said the second resistor, and said the second resistor is between said the first resistor and ground, and (ii) said the input from a temperature responsive unit connects between said the first resistor and said the second resistor.

24. (Currently Amended) A multistage differential amplifier[[,]] comprising:

(a)—a first amplifier stage, said the first amplifier stage including:

(i)—a first differential pair of input NPN bipolar transistors with loads coupled to a supply voltage through a first common-mode PMOS transistor; and

(ii) a first pair of emitter-follower output NPN bipolar transistors coupled to said the first differential pair of input transistors;

(b)—a second amplifier stage, said the second amplifier stage including:

(i)—a second differential pair of input transistors with loads coupled to said the supply voltage through a second common-mode transistors; and

(ii)—a second pair of emitter-follower output transistors coupled to said the second differential pair of input transistors, wherein said the second differential pair of input transistors is coupled to said the first pair of emitter-follower output transistors; and

(c)—a voltage regulator coupled to control said the first common-mode transistor, said the voltage regulator including:

(i)—a differential amplifier with a first input from a reference voltage, a second input from a temperature responsive unit, and an output to a third transistor connected between a supply voltage and said the temperature responsive unit; and

(ii)—a regulated voltage output ~~locus-node~~ between said the third transistor and said the temperature responsive unit, wherein said the temperature responsive

unit includes in series a first resistor, a second resistor, and a diode-connected NPN bipolar transistor.

25. (Currently Amended) The amplifier of claim 24, wherein ~~said~~the voltage regulator is coupled to control ~~said~~the second common-mode transistor.

26. (Currently Amended) The amplifier of claim 25, further comprising: (a)—a third amplifier stage, ~~said~~the third amplifier stage including:

(i)—a third differential pair of input transistors with loads coupled to ~~said~~the supply voltage through a third common-mode transistor; and

(ii)—a third pair of emitter-follower output transistors coupled to ~~said~~the third differential pair of input transistors, wherein ~~said~~the third differential pair of input transistors is coupled to ~~said~~the second pair of emitter-follower output transistors.

27. (Currently Amended) The amplifier of claim 21, wherein ~~said~~the voltage regulator is coupled to control ~~said~~the second common-mode transistor[[;]], and wherein the diode-connected transistor has a voltage-temperature response similar to that of each of the second pair of emitter-follower output transistors in the second amplifier stage.

28. (Currently Amended) The amplifier of claim 27, further comprising: (a)—a third amplifier stage, ~~said~~the third amplifier stage including:

(i)—a third differential pair of input transistors with loads coupled to ~~said~~the supply voltage through a third common-mode transistor; and

(ii)—a third pair of emitter-follower output transistors coupled to ~~said~~the third differential pair of input transistors, wherein ~~said~~the third differential pair of input transistors is coupled to ~~said~~the second pair of emitter-follower output transistors.